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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,438	07/27/2001	Fan Zhong	3275.28US01	9712

24113 7590 12/20/2005

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EXAMINER
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COLEMAN, WILLIAM D

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/917,438

Applicant(s)

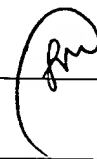
ZHONG ET AL.

Examiner

W. David Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

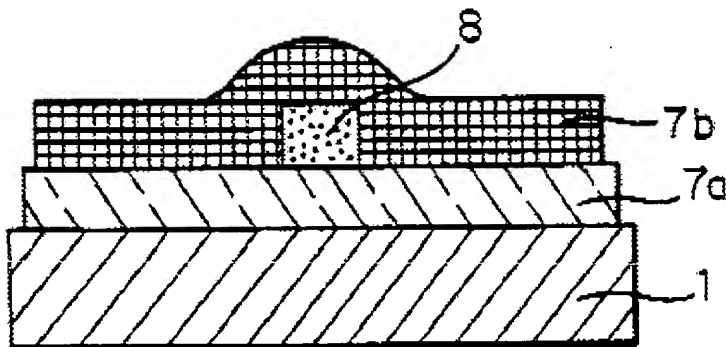
1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 3, 2005 has been entered.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,7,8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimoto U.S. Patent 5,408,569.



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4. Pertaining to claims 1, 7, 8 and 14, Nishimoto discloses a semiconductor substantially as claimed. Nishimoto teaches a method of depositing a top clad layer. The method comprising the steps of

a) providing a flow rate for a Ge dopant gas for a SiO<sub>2</sub> top clad layer deposition;

b) providing a flow rate for a P dopant gas for the top clad layer deposition;

c) providing a flow rate for a B dopant gas for the top cladding layer deposition; and

d) controlling the flow rates for the Ge dopant gas, P dopant gas, and B dopant gas to form the

top clad layer. However, Nishimoto fails to disclose the prevention of the formation of crystallization areas. The express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. "The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness."

*In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995) (affirmed a 35 U.S.C.

103(a) rejection based in part on inherent disclosure in one of the references).

5. Claims 2-6,9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Nishimoto U.S. Patent 5,408,569 in view of Russell et al., U.S. Patent 5,648,175

Nishimoto discloses a semiconductor process substantially as claimed.

6. Pertaining to claims 2 and 9, Nishimoto fails to teach the process of claims 2 and 9.

Russell teaches the method of claims 1 and 8, wherein the controlling of the flow rates for the Ge dopant gas, the P dopant gas, and the B dopant gas is configured to increase refractive index stability of the top clad layer across an anneal temperature range from 900C to 1050C. In view of Russell it would have been obvious to one of ordinary skill in the art to incorporate the

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limitations of Russell into the Nishimoto semiconductor process because of its low stress and good adhesion properties (column 1, lines 40-41).

7. Pertaining to claims 3 and 10, Nishimoto in view of Russell teaches the method of claim 1, wherein the controlling of the flow rates for the Ge dopant gas, the P dopant gas, and the B dopant gas is configured to reduce a number of deposition and anneal cycles required for depositing the top clad layer. In view of Russell it would have been obvious to one of ordinary skill in the art to incorporate the limitations of Russell into the Nishimoto semiconductor process because of its low stress and good adhesion properties (column 1, lines 40-41).

8. Pertaining to claims 4 and 11, Nishimoto in view of Russell teaches the method of claim 1, wherein the B dopant gas comprises  $B_2H_6$  or  $B(OCH_3)_3$ , tetramethyl borate (TMB). In view of Russell it would have been obvious to one of ordinary skill in the art to incorporate the limitations of Russell into the Nishimoto semiconductor process because of its low stress and good adhesion properties (column 1, lines 40-41).

9. Pertaining to claims 5 and 12, Nishimoto in view of Russell teaches the method of claim 1, wherein the Ge dopant gas comprises  $GeH_4$ ,  $Ge_2H_6$  or  $Ge(C_2H_5O)_4$ . In view of Russell it would have been obvious to one of ordinary skill in the art to incorporate the limitations of

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Russell into the Nishimoto semiconductor process because of its low stress and good adhesion properties (column 1, lines 40-41).

10. Pertaining to claims 6 and 14, Nishimoto in view of Russell teaches the method of claim 1, wherein the P dopant gas comprises PH<sub>3</sub> or P(CH<sub>3</sub>)<sub>3</sub> tetramethyl phosphite (TMP). In view of Russell it would have been obvious to one of ordinary skill in the art to incorporate the limitations of Russell into the Nishimoto semiconductor process because of its low stress and good adhesion properties (column 1, lines 40-41).

11. Pertaining to claim 18, 19 and 20, Nishimoto in view of Russell fails to disclose the percent by weight of the dopants as claimed. Given the teaching of the references, it would have been obvious to determine the optimum thickness, temperature as well as condition of delivery of the layers involved. See *In re Aller, Lacey and Hall* (10 USPQ 233-237) "It is not inventive to discover optimum or workable ranges by routine experimentation. Note that the specification contains no disclosure of either the critical nature of the claimed ranges or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Any differences in the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)

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Appellants have the burden of explaining the data in any declaration they proffer as evidence of non-obviousness. *Ex parte Ishizaka*, 24 USPQ2d 1621, 1624 (Bd. Pat. App. & Inter. 1992).

An Affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness. *In re Burckel*, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979).

### *Conclusion*

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856.

The examiner can normally be reached on Monday-Friday 9:00 AM - 5:30 PM.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



W. David Coleman  
Primary Examiner  
Art Unit 2823

WDC